Remarks

As an initial matter Applicant thanks the Examiner for discussing this case with Applicant's representative on August 17, 2007 and August 20, 2007.

In general, each of the independent claims in this application currently requires that a true human machine interface (i.e., an interface that allow a human to directly interface with a machine) that includes either a receiver or a transmitter for sending or receiving signals that are used to determine location of a wireless information device which is different than the prior art cited which fails to teach an HMI that includes a receiver or transmitter for generating location related information.

In the interest of clarity, the titles and paragraph numbers hereafter match the titles and paragraph numbers in the most recent Office Action.

Claim Rejections – 35 USC Section 102

2. Claim 37 has been amended to replace "there fore" with "therefore".

3-52; 54-56. The Office Action rejected each of independent claims 1, 23, 31, 37, 40, 54, 64 and 66 and a subset of the dependent claims pending in this application as anticipated by De Meyer (US application publication No. 2005/0021158) including dependent claims 2, 24, 55, 61 and 70. Each of dependent claims 2, 24, 55, 61 and 70 was previously cancelled and therefore rejection of those claims is in error.

In general the present invention is related to a system that allows a wireless information device user (e.g., a palm type computing device) to move about within a manufacturing facility and, based on the location of the WID, to receive information and control interfaces via the WID regarding or related to operations of machines proximate the WID. To determine WID location, either stationary transmitters are provided within the facility that transmit signals to the WID so that the WID can determine its location or the WID transmits signals to stationary receivers in the facility and a processor linked to the stationary receivers determines WID location.

In the present case the inventors have recognized that the accuracy of WID position determinations within a facility can be increased by increasing the amount of

location determining data used in the location calculation and/or by increasing the quality of that data obtained (i.e., increasing the signal strength of the received data).

The inventors have also recognized that the amount of data used to calculate location can be increased by increasing the number of stationary data receivers/transmitters within the facility and that the quality of the received data at critical locations within a facility (i.e., proximate operating machines where control/monitoring is usually most critical) can be increased by placing the stationary receivers/transmitters proximate locations within the facility at which machine information access and/or control will be needed. Thus, instead of placing additional receivers at uniform locations throughout a facility, higher quality signals can be obtained by placing the receivers at locations proximate machines that are to be monitored and/or controlled via a WID.

Moreover, the inventors have recognized that one easy way to increase the number of data receivers without appreciably increasing the costs associated with installing the additional receivers is to include the receivers in components that are already being installed in a facility for other purposes.

Stationary human machine interfaces that are usable at machines to monitor and/or control those machines are the most advantageous components that are already being installed in facilities in which to provide the additional stationary receivers/transmitters. To this end, HMIs are routinely installed proximate machines to allow system users to control and/or monitor machine operations. In addition, HMIs include processors that can easily provide processing power for transmitting and/or receiving signals, for calculating locations or for transferring information to some other processor for performing the locating process.

Consistent with the above comments, claim 1 currently requires a human machine interface (HMI) that itself can be used as either a display device to provide information directly to a human or an input device to receive input directly from a human where the HMI also includes a receiver for receiving wireless signals from a wireless information device (i.e., a palm type device) where the received signals are used to determine the location of the WID. Thus, in claim 1, the WID is not intended to replace

the HMI and instead provides as an alternative within a system that includes HMIs for system users to control/monitor machines.

Turning to De Meyer, Applicant admits that De Meyer uses terms and phrases that are confusing to describe a system in which wireless devices are used to access location specific information about machines proximate the locations. Nevertheless, a careful reading of De Meyer makes clear that De Meyer did not contemplate a system wherein wireless receivers (or for that matter transmitters) were included in true human-machine interfaces (i.e., interfaces where a human can directly input data or can directly access information).

Referring to De Meyer's Fig. 1, despite the phrases used by De Meyer to label HMI data modules AP1, AP2, modules AP1 and AP2 are *not* human to machine interfaces in the sense that the modules AP1 and AP2 cannot be used by a human to directly enter information into the system or to directly receive information about a machine associated with the module. Instead of facilitating direct input and output, modules AP1 and AP2 have to cooperate with one of the mobile monitoring modules MU (see again Fig. 1) in order to receive input or provide output. More specifically, De Meyer teaches that data to be presented to a system user is transmitted from one of modules AP1 or AP2 to the mobile module MU which then displays the received information (see paragraph 26 where De Meyer teaches that "Thus, an HMI data module (e.g., AP1) of this kind handles the entire spectrum of tasks, except for the direct display and the specification of HMI data" (emphasis added); see also paragraph 56 that describes transmission of information to a mobile module MU).

Similarly, to input information for controlling a machine associated with one of the modules AP1 or AP2, De Meyer teaches that the system user enters information via the mobile module MU which is then transmitted to one of the stationary modules AP1 or AP2 (see paragraph 57 that describes transmission of input information from a mobile module MU to one of the stationary modules AP1 or AP2). Thus, modules AP1 and AP2 are not HMIs and instead are akin to transceivers that have some processing power. Applicant has examined De Meyer in detail and is absolutely clear that De Meyer's entire specification is completely consistent with the above understanding that

the data modules AP1 and AP2 cannot be used by a human to directly input or receive information.

De Meyer teaches a second embodiment shown in Figs. 5-7 that includes HMI communications modules (see paragraph 68) AP3-AP6 and a server that perform the functions of the HMI data modules AP1 and AP2 of Fig. 1. In the second embodiment, like the first, despite the change in nomenclature, the communications modules AP3-AP6 are not HMIs because they do not allow a human user to directly interface with a machine. Once again, the second embodiment outputs information to a system user by transmitting to a mobile unit MU and obtains input from the user where the user directly enters the input via the mobile unit, not via the HMI.

It should also be recognized that De Meyer's entire specification teaches away from prior art systems that included stationary HMIs and instead replaces those HMIs with the mobile units MU. In this regard see De Meyer's background section that describes shortcomings of systems that rely on stationary HMIs. To this end, De Meyer's teaches that:

> "Conventionally, the devices of an automation system are fixedly assigned to the technical installation to be controlled. These devices include not only the control devices that are fixedly coupled to the technical installation, but, typically, also the HMI devices. The devices are usually uniquely assigned to the associated technical installation as a fixed component of the respective automation system, e.g., in the form of a terminal or an operator panel. All the machine and control specific data of the respectively associated technical installation, e.g., machine data, process images or representations, configuration files and much more, are loaded into the individual operator panels of an automation system. The runtime software of such an HMI device thus contains all the data and parameters necessary for the operator personnel to control and monitor precisely this technical installation or a part thereof.
>
> However, such a fixed, data-related allocation or assignment of an HMI device to an automation system and the technical installation connected thereto has drawbacks. Since all the machine and control specific data of the installation is fixedly stored in the HMI device, the flexibility of such an HMI device is usually limited. Therefore, these HMI devices are often stationary and mounted in the immediate spatial environment of the associated technical installation. Thus, an operator

> has to go to the location of the respective HMI device and is therefore limited in his or her freedom to move. Furthermore, both the HMI device and the operator are continuously exposed to the environmental conditions present at the mounting site.
>
> If such an HMI device must be replaced, all the machine and control specific data must be reloaded in order to completely restore the operability of the original HMI device. Even if the HMI devices are mobile, e.g., in the form of cable-bound or radio-linked handheld devices, they are typically allocated or assigned to a technical installation or to a control apparatus thereof in logically unique manner. Again, this typically means that all the design, display and machine data has to be loaded into the handheld device; i.e., the data must be kept available for all possible monitoring and control situations, irrespective of how frequently the data is actually used. As a consequence, the hardware and software for such HMI devices must be powerful enough and, thus, if such devices fail and have to be replaced, significant costs may be incurred." (see De Meyer's paragraphs 0004-0007).

Thus, De Meyer fails to teach or suggest a system that includes HMIs that include wireless receivers and that can be used to either directly receive input from a human or to directly provide output to a human where received signals are used to determine the location of a wireless information device. In fact, De Meyer teaches away from HMIs that include a receiver or a transmitter and that can be used to directly receive input or to directly provide output. a For at least this reason Applicant believes that claim 1 and claims that depend there from are novel over De Meyer and requests the Examiner indicate that the claims are novel in the next Office Action.

Each of the other independent claims in this application have been amended in a fashion similar to the amendments to claim 1 and are believed to be novel over De Meyer for the same reasons that claim 1 is novel as indicated above. More specifically, each of the other independent claims requires, among other things, an HMI that includes either a receiver or a transmitter and that can be used to directly receive information from or to directly provide information to a human where signals received or transmitted are used to determine the location of a WID and De Meyer teaches away from a true HMI that includes a receiver or a transmitter. For this reason Applicant

requests that the Examiner indicate in the next Office Action that the other independent claims and claims that depend there from are novel over the cited art.

53. In addition, claim 66 of the present application requires, among other things, that a wireless information device (WID) (1) receive signals from a transmitter, (2) determine signal strengths of the received signals and (3) transmit the signal strength data to a receiver and that a second processor that is separate from the WID use the signal strength data to determine WID position.

In contrast, De Meyer teaches two separate processes that are described in paragraphs 76 and 77. First, in paragraph 76, De Meyer teaches that a wireless device MU receives short range fields or "emissions" from HMI communication modules AP5, AP6, etc., and that device MU itself determines its own position (see first sentence of paragraph 76). Thus, in this embodiment there is no second processor separate from the device MU that determines the position of the device MU and instead the device MU determines its position and provides the position information to the second processor.

Second, in paragraph 77, De Meyer teaches that in a second process the wireless device MU generate "emissions" (i.e., "short range fields" as described in the second sentence in paragraph 76) that are received by modules AP5, AP6, etc., where the short range fields or emissions are analyzed to determine the position of the device MU. Here, emissions or short range fields do not include and are not akin to signal strength information and instead have to be analyzed to determine signal strength when they are received. Thus, in De Meyer's second process, known strength signals are not transmitted to a WID (instead known signal strength signals are transmitted by a WID). In addition, in De Meyer's second process, the WID does not transmit signal strength information (instead the WID transmits emissions or short range fields that can be used by another processor to first generate signal strength information and to then use the signal strength information to determine WID location. In short, the difference between De Meyer's second process and the claim 66 process is where the signal strength information is generated. In claim 66, the WID generates the signal strength

information and in De Meyer's second process a second processor, not the WID, generates the signal strength information.

For this additional reason Applicant believes that claim 66 and the claims that depend there from are patentable over De Meyer and requests that the rejection be withdrawn.

Claim Rejections – 35 USC Section 103

The Office Action rejected several dependent claims as obvious over De Meyer in view of Rogers. Because Rogers fails to teach the limitations of the independent claims as described above, Applicant believes that each of the dependent claims rejected as obvious are non-obvious and patentable over the cited references.

Applicant has introduced no new matter in making the above remarks and amendments. In view of the above remarks, Applicant believes claims 1, 3-23, 25-46, 48-54, 56-60 and 62-69 of the present application recite patentable subject matter and allowance of the same is requested. No fee in addition to the fees already authorized in this and accompanying documentation is believed to be required to enter this amendment, however, if an additional fee is required, please charge Deposit Account No. 17-0055 in the amount of the fee.

Respectfully submitted,

DAVID W. FARCHMIN

Date: 8-20-07

By: _____

Michael A. Jaskolski
Reg. No. 37,551
Attorney for Applicant
QUARLES & BRADY, LLP
411 East Wisconsin Avenue
Milwaukee, WI. 53202-4497
(414) 277-5711